

## REMARKS

### INFORMATION DISCLOSURE STATEMENT

Applicant continues to look forward to receiving an initialed copy of the Form 1449 filed with the IDS of February 4, 2004. As discussed in the previous response, no copies of the cited references are required under Rule 1.98(d).

### SECTION 102 REJECTION OF CLAIM 59

Malignant tissue is known to have an oxygenation level that differs from that of surrounding tissue. A difficulty encountered in hunting for malignant tissue is that the difference in oxygenation level is rather small. As a result, one can easily miss malignant tissue against a background of normal tissue.

*Fantini* teaches a way to make malignant tissue stand out more clearly against the background tissue. *Fantini*'s procedure involves, at each point, multiplying the tissue thickness at that point and the intensity of light transmitted through the tissue at that point. This defines a spatial function at each point. *Fantini* then calculates the spatial second derivative of that function.<sup>1</sup>

#### **"detecting radiation reflected from tissue"**

The Office regards the step of detecting radiation reflected from tissue as being disclosed by claim 1 of *Fantini*. Applicant suspects that the Office relies on the following portion of claim 1:

"a detector for detecting light transmitted through the sample."

However, claim 59 recites

"detecting radiation *reflected from* the tissue."

Radiation *reflected from* tissue is different from radiation *transmitted through* tissue. The distinction is of particular importance because the next step of *Fantini*'s claim 1 involves multiplying sample thickness with the intensity of light transmitted through the sample. In the context of radiation *reflected from* tissue, the sample thickness would appear to be of limited

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<sup>1</sup> *Fantini* claim 1 recites "(c) a processor for calculating spatial second derivatives of products of sample thicknesses and intensities of the transmitted light."

significance since one can never be sure whether radiation was reflected from the sample's surface or from some depth within the sample.

In the context of radiation *transmitted through* tissue, which is what *Fantini's* claim 1 actually recites, the sample thickness would be of greater significance. After all, if one knows that radiation has gone all the way through the tissue sample, then one would know precisely how much of the sample that tissue interacted with. This is not the case for radiation *reflected from* a sample.

It is apparent therefore that "detecting radiation *reflected from* tissue," as recited in Applicant's claim 59, is quite different from "detecting light *transmitted through* the sample" as disclosed by *Fantini's* claim 1.

**"converting ... numbers into ... continuous grade output ... without a threshold"**

The Office appears to rely on FIGS. 3-5 and FIGS. 24 A1-B2 as teaching the above limitation.

However, in fact, *Fantini* does use a threshold. As discussed in connection with FIG 5:

"[I]n FIG. 5, areas with positive N" are set to white (by setting a threshold at  $N''=0$ ), areas with negative N" ... are displayed in gray-scale, and the region external to the breast is set to black."<sup>2</sup>

Claims 60-63 depend on claim 59 and are patentable for at least the same reason.

**SUMMARY**

Now pending in this application are claims 59-63, of which claim 59 is independent. No additional fees are believed to be due in connection with the filing of this response. However, to the extent fees are due, or if a refund is forthcoming, please charge our deposit account 06-1050, referencing Attorney Docket No. 12258-030001.

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<sup>2</sup> *Fantini*, paragraph 59.

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Respectfully submitted,

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